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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,245	09/26/2003	Masaru Sugano	031198	8594

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EXAMINER	
ROBERTS, JESSICA M	
ART UNIT	PAPER NUMBER
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/670,245	SUGANO ET AL.
	Examiner	Art Unit
	Jessica Roberts	2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on ____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5)☐ Claim(s) ____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) ____ is/are objected to.

8)☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on ____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. ____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 12/05/2003.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 3 is objected to because of the following informalities:

Claim 3 is claiming the scene detector classifies the scene into a dynamic scene, however, from the specification, it should read upon the static scene. For purpose of applying prior art, claim 3 will be interpreted as classifying a scene into a static scene. Appropriate correction is required.

2. Claims 18 –20 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only, and cannot depend from any other multiple dependent claim. See MPEP § 608.01(n).

a. "...claim 1 and 4".

For examination purposes, claims 18-20 are viewed as dependent upon claim 1 respectively.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United

States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6 and 9-20 are rejected under 102(e) as being anticipated by Chakraborty et al, US 7,110,454.

Re claim 1, Chakraborty discloses a scene classification apparatus (fig. 1) of video for segmenting video into shot (col. 5, line 1) and classifying each scene composed of one or more continuous shots based on a content of the scene (continuous units or "shots" col. 1 line 35-37, col. 5, lines 16-24; Note: the "metrics" are used for scene classification), comprising: a detector for detecting shot density (histogram difference metric, a histogram is a graphical display of tabulated frequencies and fig. 2A: 203) DS of the video; a detector for detecting motion intensity (interframe difference metric col. 4 line 22-23, col. 14 lines 30-32, and fig. 2A: 202) of the respective shots; and a dynamic/static scene detector (metric computation col. 5 line 9-11, fig. 1:14-17 and fig. 2A) for classifying the respective shots into a dynamic scene (abrupt scene, see abstract, furthermore, the meaning of abrupt is interpreted as sudden or fast) with much motions or a static scene with little motions (gradual scene, see abstract, furthermore, the meaning of gradual is interpreted as slow and not moving quickly) based on the shot density (histogram difference, a histogram is a graphical display of tabulated frequencies) and the motion intensity (interframe difference col. 4 line 22-23 and col. 14 lines 30-32).

Regarding claim 2, Chakraborty discloses the scene classification apparatus of video according to claim 1, wherein the dynamic/static (metric computation col. 5 lines 9-11, fig. 1:14-17 and fig. 2A) scene detector classifies a shot whose shot density

(histogram difference, a histogram is a graphical display of tabulated frequencies) is larger than first reference density and whose motion intensity is stronger than first reference intensity (frame to frame intensity col. 1 lines 50-53) into the dynamic (abrupt col. 12, line 67; col. 13 line 1-3) scene.

Regarding claim 3, Chakraborty discloses the scene classification apparatus of video according to claim 1, wherein the dynamic/static scene detector (metric computation col. 5 lines 9-11, fig. 1:14-17 and fig. 2A) classifies a shot whose shot density (histogram difference, a histogram is a graphical display of tabulated frequencies) is smaller than second reference density and whose motion intensity (histogram difference computation fig. 1:16) is weaker than second reference intensity into the dynamic scene (gradual scene).

Regarding claim 4, Chakraborty discloses a scene classification apparatus (fig. 1) of video for segmenting video into shots (col. 5, line 1) and classifying each scene composed of at least one continued shot based on a content of the scene (continuous units or "shots" col. 1 line 35-37, col. 5, lines 16-24; <u>Note</u>: the "metrics" are used for scene classification), comprising: an extractor for extracting shots (validation module col. 7 lines 54-55) similar to a current target shot (candidate and non-candidate scene change locations (frames) col. 7 lines 36-38 and fig. 1:19) from shots after a shot before the target shot (compares neighboring keyframes col. 7 line 55) only by a predetermined interval (predetermined threshold col. 14 line 59); and a slow (gradual) scene detector (interframe variance difference col. 7 line 48-50) for classifying the target shot (candidate and non-candidate scene change locations (frames) col. 7 lines 39-38)

into a slow scene (gradual) of the similar shot based on motion intensity (interframe difference col. 14 lines 30-32) of the target shot (candidate and non-candidate scene change locations (frames) col. 7 lines 36-38 and fig. 1:19) and the similar shot (key frame col. 14 lines 52-57 and fig 2B: 229).

Regarding claim 5, Chakraborty discloses the scene classification apparatus of video according to claim 4, wherein the slow (gradual) scene detector (interframe variance difference metric computation col. 7 line 48-50 and fig. 1: 17) classifies the target shot (candidate and non-candidate scene change locations (frames) col. 7 lines 36-38 and fig. 1:19) into the slow scene (gradual scene) of the similar shot when the motion intensity (interframe difference col. 14 lines 30-32) of the similar shot is stronger than the motion intensity (interframe difference col. 14 lines 30-32) of the target shot (candidate and non-candidate scene change locations (frames) col. 5 line 20-24).

Regarding claim 6, Chakraborty further discloses comprising a first highlight (gradual) scene detector (shot list database col. 8 line 8-11 fig. 1:21) for classifying a scene composed of a plurality of shots continued just before (neighboring key frames col. 7 line 55-59) the slow (gradual) scene into a first highlight (gradual) scene.

Regarding claim 9, Chakraborty discloses a scene classification apparatus (fig. 1) of video for segmenting video into shots (col. 5, line 1) and classifying each scene composed of at least one continued shot based on a content of the scene (continuous units or "shots" col. 1 line 35-37, col. 5, lines 16-24; Note: the "metrics" are used for scene classification), comprising: an extractor for extracting shots (validation module col. 7 lines 54-55), comprising: detector for detecting a histogram relating to motion

directions of the shots (histogram difference metric col. 8 line 51-56 and col. 9 line 4-5); and a detector for detecting a scene in which a camera operation has been performed based on the histogram of motion direction (interframe difference col. 4 lines 16-17).

Regarding claim 10, Chakraborty discloses the scene classification apparatus of video according to claim 9, further comprising a zooming scene detector (interframe variance difference metric col. 4 lines 15-17) for, when the histogram of motion direction (histogram difference metric col. 8 lines 54-57) is uniform (col. 8 lines 62-63, i.e. "normal' intensity distribution) and a number of elements of respective bins is larger than a reference number of elements (each bin corresponding to an intensity range col. 8 line 53), classifying its shot into a zooming scene (gradual scene).

Regarding claim 11, Chakraborty discloses the scene classification apparatus of video according to claim 9, further including: detector for detecting spatial distribution (variance difference furthermore, the variance difference detects the difference within a frame where spatial distribution takes place) of motion of each shot; and a panning scene detector (interframe and histogram difference metric col. 7 lines 46-48) for detecting whether the respective shots are a panning scene (abrupt scene) based on the histogram of motion direction (histogram difference metric, the histogram as well as the interframe difference metric are processed to validate candidate scene changes as abrupt col. 7 lines 45-48 and fig. 2A: 202-203) and the spatial distribution of motion (variance difference).

Regarding claim 12, Chakraborty discloses the scene classification apparatus of video according to claim 11, wherein when the histogram of motion (histogram

difference metric) direction is concentrated in one direction and the spatial distribution (variance difference furthermore, the variance difference detects the difference within a frame where spatial distribution takes place) of motion is uniform (typically assumed not to change from frame to frame col. 12 lines 33-34), the panning scene detector (interframe and histogram difference metric col. 7 lines 46-48) classifies shot into the panning (abrupt) scene.

Regarding claim 13, Chakraborty discloses a scene classification apparatus (fig. 1) of video for segmenting video into shots (col. 5, line 1) and classifying each scene composed of one or more shots based on a content of the scene (continuous units or "shots" col. 1 line 35-37, col. 5, lines 16-24; Note: the "metrics" are used for scene classification), comprising: an extractor for extracting shots (validation module, col. 7 lines 54-55), comprising: a detector for detecting a shot density DS (histogram difference metric, a histogram is a graphical display of tabulated frequencies) of the video; and a commercial scene detector (interframe and histogram difference metric, col. 7 lines 46-48) for detecting a commercial scene (abrupt scene) based on the shot density (minimum predefined shot duration col. 13 lines 18-35).

Regarding claim 14, Chakraborty discloses a scene classification apparatus of video for segmenting video into shots and classifying each scene composed of one or more continuous (continuous units or "shots", col. 1 line 35-37) shots based on a content of the scene, comprising: a detector for detecting a number of shot boundaries (threshold levels, col. 5 lines 22-23, furthermore, histograms are the most common method used to detect shot boundaries) of the video; and a commercial scene detector

(interframe and histogram difference metric, col. 7 lines 46-48) for detecting a commercial scene (abrupt scene) based on the number of shot boundaries (threshold level col. 5 line 22-23)

Regarding claim 15, Chakraborty discloses the scene classification apparatus of video according to claim 1 or 4, wherein the video are compressed data (video source may be either compressed or decompressed video data, col. 6 lines 45-46), and the motion intensity (interframe variance difference, col. 4 line 22-23) is detected by using a value of a motion vector of a predictive coding image existing in each shot (MPEG col. 6 lines 51-60, furthermore, MPEG is a predictive image technique that incorporates tabling motion vector values).

Regarding claim 16, Chakraborty discloses the scene classification apparatus of video according to claim 11, wherein the video are compressed data (video source may be either compressed or decompressed video data, col. 6 lines 45-46), and the spatial distribution (variance difference, referring to within the frame, furthermore, MPEG has spatio temporal locator capabilities) of motion is detected by using a value of a motion vector of a predictive coding image existing in each shot (MPEG, col. 6 lines 51-60, furthermore, MPEG is a predictive image coding technique that incorporates tabulating motion vector values).

Regarding claim 17, Chakraborty discloses the scene classification apparatus of video according to claim 9, wherein the video are compressed data video source may be either compressed or decompressed video data, col. 6 lines 45-46), and the histogram of motion (histogram difference metric) direction is detected by using a value

of a motion vector of a predictive coding image existing in each shot (MPEG, col. 6 lines 51-60, furthermore, MPEG is a predictive image coding technique that incorporates tabling motion vector values).

Regarding claim 18, Chakraborty discloses the scene classification apparatus of video according to claims 1 and 4, wherein the video are uncompressed data (video source may be either compressed or decompressed video data, col. 6 lines 45-46), and the motion intensity (interframe variance difference, col. 4 line 22-23) is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots (col. 14 line 51-65).

Regarding claim 19, Chakraborty discloses the scene classification apparatus of video according to claims 1 and 4, wherein the video are uncompressed data (video source may be either compressed or decompressed video data, col. 6 line 45-46), and the spatial distribution (variance difference metric, furthermore, the variance difference refers to the differences within a frame) of motion is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots (col. 14 line 51-65).

Regarding claim 20, Chakraborty discloses the scene classification apparatus of video according to claims 1 and 4, wherein the video are uncompressed data (video source may be either compressed or decompressed video data, col. 6 line 45-46), and the histogram of motion direction (histogram difference metric) is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots (col. 14 line 51-65).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakraborty (US Patent 7,110,454) as applied to claim 6 above, and further in view of Blanchard US Patent 6347114).

Regarding claim 7, Chakraborty fails to teach a detector for detecting the intensity of audio signals accompanied by the video. Blanchard teaches a detector for detecting intensity of an audio signal (audio levels col. 3 lines 37-51) accompanied by the video (col. 2 lines 27-29) into shot. Blanchard also teaches detector for classifying a scene composed of a plurality of shots continued before and after a shot with the audio

signal intensity stronger than the predetermined intensity (col. 2 lines 17-22) into a second highlight scene (gradual scene).

Taking the combined teaching of Chakraborty and Blanchard as a whole, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to incorporate detecting the intensity of audio signals accompanied by the video as claimed for the benefit of detecting scene changes that may generally be identified and distinguished from mere shots changes where the audio level will generally remain the same.

Regarding Claim 8, the combination of Chakraborty and Blanchard as whole further teaches a commercial scene detector (interframe and histogram difference metric col. 7 lines 46-48, Chakraborty) for classifying the respective shots into a commercial scene (abrupt scene), wherein a scene classified into a scene other than the first highlight scene (gradual), the second highlight scene (gradual scene) and the commercial scene (abrupt scene) is classified into the highlight scene (gradual).

7. Claims 21-22 are rejected under 35 U.S.C 103(a) as being unpatentable over Chakraborty (US Patent 7,110,454) in view of Gonsalves US Patent (6,392,710).

Regarding claim 21, which is substantially the same as claim 1 in addition to the limitation of inserting a video transition effect into a combined portion of the respective highlight scenes. Chakraborty fails to teach this aspect. However, the analysis and rejection of claim 1 apply here for common subject matter.

Gonsalves teaches allowing the video editor to insert a video transition effect on a field/frame-by-field/frame basis in order to improve accuracy of the effect (Gonsalves, special effect, col. 3 lines 11-14, line 24, between two frames col. 4, 65-67, col. 5 lines 50-52, and fig. 3b: 320a –320b).

Taking the combined teaching of Chakraborty and Gonsalves as a whole, it would have been obvious to one of ordinary skills in the art at the time the invention was made to utilize the technique of inserting a transition effect as taught in Gonsalves to improve its accuracy for video editing purposes.

Regarding claim 22, Chakraborty discloses a video processing system for generating a content-based visual summary of video to facilitate digital video indexing and browsing as well as a database for storing (col. 6 lines 34-40). Chakraborty fails to teach inserting transition effects, however, Gonsalves does (see discussion in claim 21).

Conclusion

8. The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Contact

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Roberts whose telephone number is (571) 270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on (571) 272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jessica Roberts/

VU LE
SUPERVISORY PATENT EXAMINER